

Attachment no. 3 Course program of the third cycle of studies			
1.	Course title	INNOVATIVE TECHNIQUES FOR PRODUCTION OF FOOD WITH OPTIMAL NUTRITIONAL VALUE	
2.	Code	ITHN - 29	
3.	Student program	<i>Innovative technologies on food and nutrition</i>	
4.	Organiser of the student program (unit, institute, department)	Faculty of Technology and Technical Science - Veles	
5.	Degree (first, second, third cycle)	Third cycle	
6.	Academic year/ semester	1 / II	Number of ECTS credits 5
8	Professor	Red. Prof. d-r Dragan Damjanovski Doc. d-r Daniela Nikolovska Nedelkoska	
9	Preconditions for enrolling on the course	II (second) cycle of studies	
10	Objectives of the course program (competences):	The student will upgrade his knowledge about innovative food treatment techniques. The student will be capable to use evidence-based approach in order to produce food with optimal nutritional value.	
11	Course content:	<p>Trends in heat processes in the preparation of food. Effects of various thermal treatments on the sensory properties and nutritional quality of the food. Achievements in the process of freezing, cooling, dehydration, concentration, as well as in separation processes in food production.</p> <p>New techniques in the food preservation (ultrasound, high pressure, ohmic heating, electromagnetic radiation, etc.).</p> <p>Minimally processed food. An integrated approach to modern minimal processing of fresh produce: aspects of minimal processing of fruits and vegetables and their packaging requirements. Processing of fruits and vegetables under high pressure and vacuum technology. Application of controlled and modified atmosphere. Food extrusion.</p> <p>New technologies for improving the quality of milk and meat. Trends and innovative technologies in the production of fermented milk and meat products.</p> <p>Application of enzymes in the modern food industry.</p>	

12	Methods of studying:				
13	Total available time fund		5 x 30 = 150 hours		
14	Distribution of the available time		50+20+40+40 = 150		
15	Forms of teaching activities		15.1	Lectures- theoretical instruction	50
			15.2	Exercises (laboratory, auditorium), seminars, teamwork	20
16.	Other forms of activities		16.1	Projects / Independent tasks	40
			16.2	Home learning	40
17.	Methods of assessment				
	17.1.	Tests/oral exam		80 points	
	17.2.	Seminar work / project, presentation (written and oral)		10 points	
	17.3.	Activity and participation		10 points	
18	Assessment criteria (points/grade)			Up to 50 points	5 (five) (F)
				from 51 to 60 points	6 (six) (E)
				from 61 to 70 points	7 (seven) (D)
				from 71 to 80 points	8 (eight) (C)
				from 81 to 90 points	9 (nine) (B)
				from 91 to 100 points	10 (ten) (A)
19.	Condition for getting a signature and taking the final exam				
20.	Teaching language		Macedonian, English		
21	Method of monitoring the quality of teaching				
22.	Literature				
	22.1.	Compulsory literature			
		Author	Title	Publisher, Year	
	1.	Rastall R. (ed.)	Novel enzyme technology	Woodhead Publ. Cambridge,	

			for food applications	UK, 2007
	2.	Xiao Dong Chen, Arun S. Mujumdar	Drying Technologies in Food Processing	Blackwell Publishing Ltd, 2008
	3.	Judith A. Evans (editor)	Frozen Food Science and Technology	Blackwell Publishing Ltd, 2008
	4.	L.M.L. Nollet and F. Toldra	Advanced technologies for meat processing	Boca Raton, FL: CRC Press, Taylor & Francis Group, 2006
	5.	Smit G.	Dairy processing: Improving quality	Woodhead Publishing Limited & CRC Press LCC, New York, 2003
	6.	Wim Jongen	Fruit and vegetable processing Improving quality	Woodhead Publishing Ltd, 2002
	7.		Selected scientific papers on appropriate topics	
22.2.	Additional literature			
		Author	Title	Publisher, Year
	1.			
	2.			
	3.			